

06/01/2005 10722261.trn

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data from INPADOC  
NEWS 5 FEB 28 BABS - Current-awareness alerts (SDIs) available  
NEWS 6 FEB 28 MEDLINE/LMEDLINE reloaded  
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NEWS 8 MAR 03 REGISTRY/ZREGISTRY - Sequence annotations enhanced  
NEWS 9 MAR 03 MEDLINE file segment of TOXCENTER reloaded  
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NEWS 13 MAR 22 REGISTRY/ZREGISTRY enhanced with experimental property tags  
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NEWS 16 APR 18 New CAS Information Use Policies available online  
NEWS 17 APR 25 Patent searching, including current-awareness alerts (SDIs),  
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applications.  
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NEWS 19 MAY 23 GBFULL enhanced with patent drawing images  
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Annual Conference  
  
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MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 10 JANUARY 2005  
  
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FILE LAST UPDATED: 31 May 2005 (20050531/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s unsaturated nitrile

53523 UNSATURATED

1 UNSATURATEDS

53524 UNSATURATED

(UNSATURATED OR UNSATURATEDS)

212024 UNSATD

13 UNSATDS

212027 UNSATD

(UNSATD OR UNSATDS)

225827 UNSATURATED

(UNSATURATED OR UNSATD)

54984 NITRILE

25626 NITRILES

69264 NITRILE

(NITRILE OR NITRILES)

L1 2770 UNSATURATED NITRILE

(UNSATURATED(W) NITRILE)

=> s l1 and catalytic oxidation

385424 CATALYTIC  
26 CATALYTICS  
385433 CATALYTIC  
(CATALYTIC OR CATALYTICS)  
415510 OXIDATION  
4739 OXIDATIONS  
416741 OXIDATION  
(OXIDATION OR OXIDATIONS)  
713539 OXIDN  
8983 OXIDNS  
715400 OXIDN  
(OXIDN OR OXIDNS)  
846859 OXIDATION  
(OXIDATION OR OXIDN)  
18057 CATALYTIC OXIDATION  
(CATALYTIC(W) OXIDATION)

L2 15 L1 AND CATALYTIC OXIDATION

=> s l2 and metal oxide

1571596 METAL  
797643 METALS  
1907036 METAL  
(METAL OR METALS)  
1561670 OXIDE  
327760 OXIDES  
1655343 OXIDE  
(OXIDE OR OXIDES)  
90400 METAL OXIDE  
(METAL(W) OXIDE)

L3

7 L2 AND METAL OXIDE

=> s l3 and vapor

484171 VAPOR  
69533 VAPORS  
525326 VAPOR  
(VAPOR OR VAPORS)

L4 3 L3 AND VAPOR

=> s l3 and mixed

744880 MIXED  
6 MIXEDS  
744884 MIXED  
(MIXED OR MIXEDS)

L5 4 L3 AND MIXED

=> d l3 ibib abs hitstr tot

L3 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:493596 CAPLUS

DOCUMENT NUMBER: 141:43516

TITLE: NOx treated mixed metal oxide catalyst

INVENTOR(S): Gaffney, Anne Mae; Heffner, Michele Doreen; Song, Ruozhi

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of Ser. No. 116,241.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004116737	A1	20040617	US 2003-731523	20031209
US 2002183547	A1	20021205	US 2002-116241	20020404
US 6818588	B2	20041116		
US 2004116731	A1	20040617	US 2003-722710	20031125
PRIORITY APPLN. INFO.:			US 2001-283260P	P 20010412
			US 2002-116241	A2 20020404

AB An improved catalyst comprising a mixed **metal oxide**, either promoted or not, is useful for the vapor phase oxidation of an alkane or a mixture of an alkane and an alkene to an unsatd. carboxylic acid and for the vapor phase ammoxidn. of an alkane or a mixture of an alkane and an alkene to an **unsatd. nitrile**. Thus, 10 mL 5% aqueous nitric acid and 50 mL an aqueous solution containing niobium oxalate (0.25 M Nb) and 0.31 M oxalic acid was added into an 100 mL aqueous solution containing ammonium heptamolybdate tetrahydrate (1.0 M Mo), ammonium metavanadate (0.3 M V), and telluric acid (0.23 M Te) and stirred, water was removed at 50° under 20 mmHg, the solid material was dried at 25° in a vacuum oven, calcined at 275° in an air atmospheric, and calcined at 600° under argon atmospheric to give a catalyst, which was used as a catalyst for oxidation of propane at 390° under steam and air (propane:steam:air = 1:3:96), giving acrylic acid with yield 34% and C3 conversion 63%.

L3 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2002:552229 CAPLUS  
 DOCUMENT NUMBER: 137:109610  
 TITLE: Oxide catalyst for the oxidation or ammoxidation of propane or isobutane to unsaturated compounds  
 INVENTOR(S): Hinago, Hidenori; Watanabe, Mamoru  
 PATENT ASSIGNEE(S): Asahi Kasei K.K., Japan  
 SOURCE: Ger. Offen., 32 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10161318	A1	20020725	DE 2001-10161318	20011213
JP 2002239382	A2	20020827	JP 2001-375891	20011210
US 2002115879	A1	20020822	US 2001-11286	20011211
CN 1360971	A	20020731	CN 2001-143806	20011213
PRIORITY APPLN. INFO.:			JP 2000-378530	A 20001213

AB An oxide catalyst is described to the use for the **catalytic oxidation** or ammoxidn. of propane or isobutane in the gas phase, which a composition represented by the formula  $MolVaSbbNbcZdOm$  contains, whereby Z is  $\geq 1$  element, which is selected from the group consisting of tungsten, chromium, titanium, aluminum, tantalum, zirconium, hafnium, manganese, iron, ruthenium, cobalt, rhodium, nickel, palladium, platinum, zinc, boron, indium, germanium, tin, lead, Bismuth, yttrium, gallium, rare earth elements and alkaline-earth metals, and a, b, c, d and n in each case the atomic proportions of vanadium (V), antimony (Sb), 0.1

$\leq a < 0.4$ ,  $0.1 < b \leq 0.4$ ,  $0.01 \leq c \leq 0.3$ ,  $0 \leq d \leq 1$ , under the condition that  $a < b$  and  $n$  is a whole number, which is certain by the value requirements of the other present elements and agrees with these. This catalyst provides unsatd. carboxylic acids or **unsatd. nitriles** with higher selectivity, and the high selectivity of this catalyst lasts longer.

L3 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2002:330255 CAPLUS  
 DOCUMENT NUMBER: 136:341139  
 TITLE: Process and catalysts for producing unsaturated carboxylic acids and **unsaturated nitriles** from alkenes and alkanes  
 INVENTOR(S): Bogan, Leonard Edward, Jr.; Han, Scott; Jacobs, Bradley Anson; Link, Richard David, III; Kaiser, Frederick William; Klugherz, Peter David; Lin, Manhua; Linsen, Michael William  
 PATENT ASSIGNEE(S): Rohm and Haas Company, USA  
 SOURCE: Eur. Pat. Appl., 13 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1201636	A2	20020502	EP 2001-308125	20010925
EP 1201636	A3	20020508		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2003187297	A1	20031002	US 2001-962487	20010925
US 6710207	B2	20040323		
CN 1346822	A	20020501	CN 2001-140942	20010927
BR 2001004336	A	20020604	BR 2001-4336	20010927
JP 2002179610	A2	20020626	JP 2001-300850	20010928
US 2004210086	A1	20041021	US 2003-722281	20031125
PRIORITY APPLN. INFO.:			US 2000-236031P	P 20000928
			US 2001-962487	A3 20010925

AB Unsatd. carboxylic acids (e.g., acrylic acid) are produced by the vapor phase **catalytic oxidation** of mixts. of alkenes (e.g., propylene) and alkanes (e.g., propane) in the presence of a catalyst containing a mixed **metal oxide**. Similarly, **unsatd. nitriles** are produced by the vapor phase **catalytic oxidation** of alkenes or mixts. of alkenes and alkanes and ammonia in the presence of a catalyst containing a mixed **metal oxide**.

L3 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2001:923667 CAPLUS  
 DOCUMENT NUMBER: 136:38031  
 TITLE: Catalysts for vapor-phase **catalytic oxidation** or vapor-phase catalytic ammoxidation of propane or isobutane  
 INVENTOR(S): Komada, Satoru; Hinago, Hidenori; Watanabe, Mamoru  
 PATENT ASSIGNEE(S): Asahi Kasei Kabushiki Kaisha, Japan; Nagano, Osamu  
 SOURCE: PCT Int. Appl., 98 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001096016	A1	20011220	WO 2001-JP5055	20010614
W: CN, DE, ID, JP, KR, US				
DE 10195967	T	20030522	DE 2001-10195967	20010614
US 2003088118	A1	20030508	US 2002-231113	20020830
PRIORITY APPLN. INFO.:			JP 2000-179687	A 20000615
			WO 2001-JP5055	W 20010614

AB An oxide catalyst comprises MolVaNbXcYdZeQfOn [wherein X is  $\geq 1$  element selected between Te and Sb, Y is  $\geq 1$  element selected between Al and W, Z is  $\geq 1$  element forming a rutile-form oxide (in catalyst production, a rutile-form oxide of element Z is used as a material for Z), Q is  $\geq 1$  element selected from the group consisting of Ti, Sn, Ge, Pb, Ta, Ru, Re, Rh, Ir, Pt, Cr, Mn, Tc, Os, Fe, As, Ce, Co, Mg, Ni, and Zn (in catalyst production, a compound of element Q not having a rutile-form structure is used as a material for Q), and a-e and n represent the atomic ratios of V, Nb, X, Y, Z, and O, resp., to Mo] and is used to produce an unsatd. carboxylic acid or **unsatd. nitrile**. Thus, propane was ammoxidized in a fluidized bed reactor at 440° over MolV0.32Nb0.07Sb0.23Ti0.35On on 43.2% SiO<sub>2</sub> to prepare acrylonitrile at selectivity 64.2% and propane conversion 50.8%.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:77535 CAPLUS

DOCUMENT NUMBER: 130:95974

TITLE: Method for gas-phase **catalytic oxidation** of hydrocarbons

INVENTOR(S): Ushikubo, Takashi; Oshima, Kazunori; Sawaki, Itaru; Shiraga, Ken; Kobayakawa, Satoshi; Takumi, Hideaki

PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9903825	A1	19990128	WO 1998-JP3151	19980714
W: AU, BR, CA, CN, ID, JP, KR, SG, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2296675	AA	19990128	CA 1998-2296675	19980714
AU 9881306	A1	19990210	AU 1998-81306	19980714
EP 997454	A1	20000503	EP 1998-931093	19980714
EP 997454	B1	20030917		
R: DE, GB				
US 6294685	B1	20010925	US 2000-462644	20000203
PRIORITY APPLN. INFO.:			JP 1997-188155	A 19970714
			WO 1998-JP3151	W 19980714

AB A method for oxidation of C3-8 alkanes and/or C2-8 alkenes in the presence of a composite **metal oxide** catalyst comprises conducting the reaction in the presence of particles (e.g., silica) substantially

inert to the reaction. A method for reutilizing the inert particles after the completion of the reaction comprises withdrawing the inert particles in the form of a mixture thereof with the catalyst, followed by separation and recovery of the inert particles from the mixture. In particular, this method is suitable for preparing an  $\alpha,\beta$ - **unsatd. nitrile** by a gas-phase **catalytic oxidation** in the presence of ammonia. The method serves to effectively regulate the quantity of heat generated during the reaction and the reaction temperature, efficiently prepare **unsatd. nitriles** and unsatd. carboxylic acids, and reutilize the inert particles.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:197888 CAPLUS

DOCUMENT NUMBER: 128:244499

TITLE: Manufacture of  $\alpha,\beta$ - **unsaturated nitriles** from alkanes and ammonia at high selectivity

INVENTOR(S): Ushikubo, Takashi; Oshima, Kazunori; Ihara, Tatsuya; Kayo, Atsushi; Sawaki, Itaru

PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10081660	A2	19980331	JP 1996-255338	19960906
PRIORITY APPLN. INFO.:			JP 1996-255338	19960906

AB The  $\alpha,\beta$ - **unsatd. nitriles** are manufactured by catalytic gas-phase oxidation of C3-8 alkanes with NH<sub>3</sub> in the presence of **metal oxide** catalysts, where the gas component molar ratio C3-8 alkane/NH<sub>3</sub>/O<sub>2</sub>/dilute gas is . The process for  $\alpha,\beta$ - **unsatd. nitriles** comprises supplying gas mixture of C3-8 alkane/NH<sub>3</sub>/O<sub>2</sub>/dilute with mole ratio 1/0.01-0.9/0.1-1.8/0-9 to a reactor having **metal oxide** catalyst; separating the nitriles from gaseous reaction products flowing out of the reactors; separating and recovering unreacted alkanes-containing gas; and feeding the recycled gas into the reactor. Thus, a mixture of 1/0.4/0.8/3.2 propane/NH<sub>3</sub>/O<sub>2</sub>/N<sub>2</sub> (propane content 18.5 vol%) was supplied into a reactor filled SiO<sub>2</sub>-supported Mo<sub>1</sub>V<sub>0.3</sub>Te<sub>0.23</sub>Nb<sub>0.12</sub>O<sub>n</sub> catalyst 100 mg and reacted at 420° to give 18.9% acrylonitrile in catalytic selectivity 65.3% (in propane conversion 28.9%).

L3 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:467292 CAPLUS

DOCUMENT NUMBER: 125:168895

TITLE: Manufacture of  $\alpha,\beta$ -ethylenically **unsaturated nitriles** from alkanes and ammonia

INVENTOR(S): Ushikubo, Takashi; Oshima, Kazunori; Ihara, Tatsuya; Amatsu, Hiroyuki

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5534650	A	19960709	US 1995-372022	19950112
CN 1110966	A	19951101	CN 1995-100090	19950112
CN 1036192	B	19971022		
JP 08225506	A2	19960903	JP 1995-3406	19950112
PRIORITY APPLN. INFO.:			JP 1994-1665	A 19940112
			JP 1994-320665	19941222

AB  $\alpha,\beta$ -Ethylenically unsatd. nitriles are manufactured by a gas phase catalytic oxidation reaction of an alkane with ammonia in the presence of a catalyst. The alkane and ammonia are supplied to an upper stream inlet of the catalyst layer, and at least a part of the total amount of ammonia is sep. supplied to a downstream position of the catalyst layer located downstream from the upper stream inlet of the catalyst layer. Thus, acrylonitrile was prepared in 87.1% yield with 63.7% selectivity for acrylonitrile from propane and NH<sub>3</sub> in the presence of silica-supported MoV<sub>0.3</sub>Te<sub>0.23</sub>Nb<sub>0.12</sub>O<sub>n</sub>. The propane/NH<sub>3</sub>/air feed ratio was 1:0.7:15 in the upper feed pipe, and addnl. NH<sub>3</sub>, 0.5 mol time of the supplied propane was provided at the center of the catalyst layer of the reactor. The yield of acrylonitrile was 55.4% based on propane and 46.2% based on NH<sub>3</sub>.

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L4 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:493596 CAPLUS  
DOCUMENT NUMBER: 141:43516  
TITLE: NOx treated mixed metal oxide catalyst  
INVENTOR(S): Gaffney, Anne Mae; Heffner, Michele Doreen; Song, Ruozhi  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of Ser. No. 116,241.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004116737	A1	20040617	US 2003-731523	20031209
US 2002183547	A1	20021205	US 2002-116241	20020404
US 6818588	B2	20041116		
US 2004116731	A1	20040617	US 2003-722710	20031125
PRIORITY APPLN. INFO.:			US 2001-283260P	P 20010412
			US 2002-116241	A2 20020404

AB An improved catalyst comprising a mixed metal oxide, either promoted or not, is useful for the vapor phase oxidation of an alkane or a mixture of an alkane and an alkene to an unsatd. carboxylic acid and for the vapor phase ammoxidn. of an alkane or a mixture of an alkane and an alkene to an unsatd. nitrile.



Thus, 10 mL 5% aqueous nitric acid and 50 mL an aqueous solution containing niobium oxalate (0.25 M Nb) and 0.31 M oxalic acid was added into an 100 mL aqueous solution containing ammonium heptamolybdate tetrahydrate (1.0 M Mo), ammonium metavanadate (0.3 M V), and telluric acid (0.23 M Te) and stirred, water was removed at 50° under 20 mmHg, the solid material was dried at 25° in a vacuum oven, calcined at 275° in an air atmospheric, and calcined at 600° under argon atmospheric to give a catalyst, which was used as a catalyst for oxidation of propane at 390° under steam and air (propane:steam:air = 1:3:96), giving acrylic acid with yield 34% and C3 conversion 63%.

L4 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:330255 CAPLUS

DOCUMENT NUMBER: 136:341139

TITLE: Process and catalysts for producing unsaturated carboxylic acids and **unsaturated nitriles** from alkenes and alkanes

INVENTOR(S): Bogan, Leonard Edward, Jr.; Han, Scott; Jacobs, Bradley Anson; Link, Richard David, III; Kaiser, Frederick William; Klugherz, Peter David; Lin, Manhua; Linsen, Michael William

PATENT ASSIGNEE(S): Rohm and Haas Company, USA

SOURCE: Eur. Pat. Appl., 13 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1201636	A2	20020502	EP 2001-308125	20010925
EP 1201636	A3	20020508		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2003187297	A1	20031002	US 2001-962487	20010925
US 6710207	B2	20040323		
CN 1346822	A	20020501	CN 2001-140942	20010927
BR 2001004336	A	20020604	BR 2001-4336	20010927
JP 2002179610	A2	20020626	JP 2001-300850	20010928
US 2004210086	A1	20041021	US 2003-722281	20031125
PRIORITY APPLN. INFO.:			US 2000-236031P	P 20000928
			US 2001-962487	A3 20010925

AB Unsaturated carboxylic acids (e.g., acrylic acid) are produced by the **vapor phase catalytic oxidation** of mixtures of alkenes (e.g., propylene) and alkanes (e.g., propane) in the presence of a catalyst containing a mixed **metal oxide**. Similarly, **unsaturated nitriles** are produced by the **vapor phase catalytic oxidation** of alkenes or mixtures of alkenes and alkanes and ammonia in the presence of a catalyst containing a mixed **metal oxide**.

L4 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:923667 CAPLUS

DOCUMENT NUMBER: 136:38031

TITLE: Catalysts for **vapor-phase catalytic oxidation** or **vapor-phase catalytic ammoxidation** of propane or isobutane

06/01/2005 10722261.trn

INVENTOR(S): Komada, Satoru; Hinago, Hidenori; Watanabe, Mamoru  
PATENT ASSIGNEE(S): Asahi Kasei Kabushiki Kaisha, Japan; Nagano, Osamu  
SOURCE: PCT Int. Appl., 98 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001096016	A1	20011220	WO 2001-JP5055	20010614
W: CN, DE, ID, JP, KR, US				
DE 10195967	T	20030522	DE 2001-10195967	20010614
US 2003088118	A1	20030508	US 2002-231113	20020830
PRIORITY APPLN. INFO.:			JP 2000-179687	A 20000615
			WO 2001-JP5055	W 20010614

AB An oxide catalyst comprises MolVaNbXcYdZeQfOn [wherein X is  $\geq 1$  element selected between Te and Sb, Y is  $\geq 1$  element selected between Al and W, Z is  $\geq 1$  element forming a rutile-form oxide (in catalyst production, a rutile-form oxide of element Z is used as a material for Z), Q is  $\geq 1$  element selected from the group consisting of Ti, Sn, Ge, Pb, Ta, Ru, Re, Rh, Ir, Pt, Cr, Mn, Tc, Os, Fe, As, Ce, Co, Mg, Ni, and Zn (in catalyst production, a compound of element Q not having a rutile-form structure is used as a material for Q), and a-e and n represent the atomic ratios of V, Nb, X, Y, Z, and O, resp., to Mo] and is used to produce an unsatd. carboxylic acid or **unsatd. nitrile**. Thus, propane was ammoxidized in a fluidized bed reactor at 440° over MolV0.32Nb0.07Sb0.23Ti0.35On on 43.2% SiO<sub>2</sub> to prepare acrylonitrile at selectivity 64.2% and propane conversion 50.8%.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 15 ibib abs hitstr tot

L5 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:493596 CAPLUS

DOCUMENT NUMBER: 141:43516

TITLE: NOx treated **mixed metal oxide catalyst**

INVENTOR(S): Gaffney, Anne Mae; Heffner, Michele Doreen; Song, Ruozhi

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of Ser. No. 116,241.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004116737	A1	20040617	US 2003-731523	20031209
US 2002183547	A1	20021205	US 2002-116241	20020404
US 6818588	B2	20041116		
US 2004116731	A1	20040617	US 2003-722710	20031125
PRIORITY APPLN. INFO.:			US 2001-283260P	P 20010412

US 2002-116241

A2 20020404

AB An improved catalyst comprising a **mixed metal oxide**, either promoted or not, is useful for the vapor phase oxidation of an alkane or a mixture of an alkane and an alkene to an unsatd. carboxylic acid and for the vapor phase ammoxidn. of an alkane or a mixture of an alkane and an alkene to an **unsatd. nitrile**. Thus, 10 mL 5% aqueous nitric acid and 50 mL an aqueous solution containing niobium oxalate (0.25 M Nb) and 0.31 M oxalic acid was added into an 100 mL aqueous solution containing ammonium heptamolybdate tetrahydrate (1.0 M Mo), ammonium metavanadate (0.3 M V), and telluric acid (0.23 M Te) and stirred, water was removed at 50° under 20 mmHg, the solid material was dried at 25° in a vacuum oven, calcined at 275° in an air atmospheric, and calcined at 600° under argon atmospheric to give a catalyst, which was used as a catalyst for oxidation of propane at 390° under steam and air (propane:steam:air = 1:3:96), giving acrylic acid with yield 34% and C3 conversion 63%.

L5 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:552229 CAPLUS

DOCUMENT NUMBER: 137:109610

TITLE: Oxide catalyst for the oxidation or ammoxidation of propane or isobutane to unsaturated compounds

INVENTOR(S): Hinago, Hidenori; Watanabe, Mamoru

PATENT ASSIGNEE(S): Asahi Kasei K.K., Japan

SOURCE: Ger. Offen., 32 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10161318	A1	20020725	DE 2001-10161318	20011213
JP 2002239382	A2	20020827	JP 2001-375891	20011210
US 2002115879	A1	20020822	US 2001-11286	20011211
CN 1360971	A	20020731	CN 2001-143806	20011213
			JP 2000-378530	A 20001213

PRIORITY APPLN. INFO.:

AB An oxide catalyst is described to the use for the **catalytic oxidation** or ammoxidn. of propane or isobutane in the gas phase, which a composition represented by the formula  $\text{MolVaSbbNbcZdOm}$  contains, whereby Z is  $\geq 1$  element, which is selected from the group consisting of tungsten, chromium, titanium, aluminum, tantalum, zirconium, hafnium, manganese, iron, ruthenium, cobalt, rhodium, nickel, palladium, platinum, zinc, boron, indium, germanium, tin, lead, Bismuth, yttrium, gallium, rare earth elements and alkaline-earth metals, and a, b, c, d and n in each case the atomic proportions of vanadium (V), antimony (Sb),  $0.1 \leq a < 0.4$ ,  $0.1 < b \leq 0.4$ ,  $0.01 \leq c \leq 0.3$ ,  $0 \leq d \leq 1$ , under the condition that  $a < b$  and n is a whole number, which is certain by the value requirements of the other present elements and agrees with these. This catalyst provides unsatd. carboxylic acids or **unsatd. nitriles** with higher selectivity, and the high selectivity of this catalyst lasts longer.

L5 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:330255 CAPLUS

DOCUMENT NUMBER: 136:341139

TITLE: Process and catalysts for producing unsaturated

carboxylic acids and **unsaturated nitriles** from alkenes and alkanes

INVENTOR(S): Bogan, Leonard Edward, Jr.; Han, Scott; Jacobs, Bradley Anson; Link, Richard David, III; Kaiser, Frederick William; Klugherz, Peter David; Lin, Manhua; Linsen, Michael William

PATENT ASSIGNEE(S): Rohm and Haas Company, USA

SOURCE: Eur. Pat. Appl., 13 pp.  
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1201636	A2	20020502	EP 2001-308125	20010925
EP 1201636	A3	20020508		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2003187297	A1	20031002	US 2001-962487	20010925
US 6710207	B2	20040323		
CN 1346822	A	20020501	CN 2001-140942	20010927
BR 2001004336	A	20020604	BR 2001-4336	20010927
JP 2002179610	A2	20020626	JP 2001-300850	20010928
US 2004210086	A1	20041021	US 2003-722281	20031125
PRIORITY APPLN. INFO.:			US 2000-236031P	P 20000928
			US 2001-962487	A3 20010925

AB Unsatd. carboxylic acids (e.g., acrylic acid) are produced by the vapor phase **catalytic oxidation** of mixts. of alkenes (e.g., propylene) and alkanes (e.g., propane) in the presence of a catalyst containing a **mixed metal oxide**. Similarly, **unsatd. nitriles** are produced by the vapor phase **catalytic oxidation** of alkenes or mixts. of alkenes and alkanes and ammonia in the presence of a catalyst containing a **mixed metal oxide**.

L5 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:467292 CAPLUS

DOCUMENT NUMBER: 125:168895

TITLE: Manufacture of  $\alpha,\beta$ -ethylenically **unsaturated nitriles** from alkanes and ammonia

INVENTOR(S): Ushikubo, Takashi; Oshima, Kazunori; Ihara, Tatsuya; Amatsu, Hiroyuki

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5534650	A	19960709	US 1995-372022	19950112
CN 1110966	A	19951101	CN 1995-100090	19950112
CN 1036192	B	19971022		
JP 08225506	A2	19960903	JP 1995-3406	19950112

06/01/2005 10722261.trn

PRIORITY APPLN. INFO.:

JP 1994-1665  
JP 1994-320665

A 19940112  
19941222

AB  $\alpha,\beta$ -Ethylenically unsatd. nitriles are manufactured by a gas phase catalytic oxidation reaction of an alkane with ammonia in the presence of a catalyst. The alkane and ammonia are supplied to an upper stream inlet of the catalyst layer, and at least a part of the total amount of ammonia is sep. supplied to a downstream position of the catalyst layer located downstream from the upper stream inlet of the catalyst layer. Thus, acrylonitrile was prepared in 87.1% yield with 63.7% selectivity for acrylonitrile from propane and NH<sub>3</sub> in the presence of silica-supported MoV<sub>0.3</sub>Te<sub>0.23</sub>Nb<sub>0.12</sub>O<sub>n</sub>. The propane/NH<sub>3</sub>/air feed ratio was 1:0.7:15 in the upper feed pipe, and addnl. NH<sub>3</sub>, 0.5 mol time of the supplied propane was provided at the center of the catalyst layer of the reactor. The yield of acrylonitrile was 55.4% based on propane and 46.2% based on NH<sub>3</sub>.

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
59.87	60.29

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-10.22	-10.22

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